PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF
W. T. COUNCILMAN, M.D.,
SHATTUCK PROFESSOR OF PATHOLOGICAL ANATOMY, HARVARD UNIVERSITY,
AND
F. B. MALLORY, M.D.,
ASSISTANT PROFESSOR OF PATHOLOGICAL ANATOMY, HARVARD UNIVERSITY.

Elastic Tissue in the Uterus and Ovary.—WOLTKE (*Ziegler's Beiträge*, 1900, vol. xxvii., p. 575), in the investigation of the elastic tissue of the uterus, examined twenty cases ranging from four months to eighty-six years in age. Sections were cut in such a way as to include both serosa and mucosa, and were stained first by Weigert's method, then washed in 96 per cent. alcohol, and placed for a few seconds in a mixture of 1 to 2 per cent. fuchsin solution and a 10 per cent. aqueous solution of picric acid.

There are three muscle layers in the uterus. The outer and inner consist of muscle bundles running longitudinally; the middle layer shows a circular arrangement, and is the thickest. The outer and inner layers are known as the stratum subserosum and stratum submucosum, the middle as the stratum vasculosum. Only in the interstitial tissue of the outer and middle layers of the corpus and fundus uteri are elastic fibres invariably found.

In the middle layer the fibres fail gradually as they run inward, so that they are lacking in the inner layer. They are most numerous in the outer layer, where they surround the muscle bundles and send fine processes in among the muscle fibres. Elastic tissue separates the muscle bundles of the outer layer from the connective tissue serosa, also the subserosa from the serosa of the peritoneum. This condition holds from the age of four months to the climacteric.

After the age of seventy years two changes appear. The elastic fibres in the middle layer form bunches around the bloodvessels, which group themselves together and show signs of sclerosis, and the number of elastic fibres in this layer decreases. These changes are especially marked in senile atrophy at from eighty-three to eighty-six years.

In youth the number of elastic fibres depends on the sexual life. If conception has taken place the number is much increased; in a virgin uterus the number is small. In young people the elastic fibres in the muscularis are thin and delicate; with increasing age they become thicker, and after fifty or sixty years they present a bunched and crumpled appearance. At a still greater age the fibres run together in clumps. The arrangement of fibres about the openings of the tubes is the same as in the body and fundus.

In the portio vaginalis the elastic fibres form a network just under the stratified epithelium, reaching to the mucosa of the cervix. A more deeply lying network surrounds the vessels, and is connected with the superficial layer by slender processes which fail toward the mucosa of the cervix. After seventy years the deeper network disappears.

In inflammation, with hyperplasia of the connective tissue, there is an increase in the elastic fibres. In fresh catarrhal inflammation of the vagina the round cells force themselves between the stratified epithelium and the superficial elastic network, pushing the latter away, and they may even break through the network. If the inflammation becomes chronic, elastic fibres appear in the newly forming fibrous tissue.

In a three-months' pregnant uterus, with the ordinary hyperplasia of the uterine tissue, the elastic fibres increase only in the layers in which they are normally found; they preserve their physiological limits.

In proliferation of the intima of the vessels of the stratum vasculosum large numbers of delicate elastic fibres appear, and the elastica is somewhat thickened. Elastic tissue disappears toward the decidua, and in the spongy layer the bloodvessels have no elastica. In the vaginal portion the elastic tissue is much more abundant in the pregnant than in the virgin uterus. In a word, in the first half of pregnancy the increase in elastic fibres follows the increase in bloodvessels.

In a seven-months' pregnant uterus the elastic fibres are few in number, having rapidly diminished since the third month. The elastic tissue increases with the hyperplasia of the uterus during the first half of pregnancy, and during the last half, as the uterine walls become thinner, the elastic tissue disappears. The vagina shows the same phenomenon, but in the paracervical tissue the elastic fibres are extremely numerous.

In the chorionic villi and septa of the placenta no elastic fibres have been seen.

Examination of the puerperal uterus showed that the elastic fibres regenerate rapidly. As new muscle fibres appear the elastic tissue also regenerates, and delicate fibres can be seen surrounding the muscle bundles and sending processes between the muscle fibres.

The cortical substance of the ovary contains no elastic tissue, but among the vessels and nerves of the hilus elastic tissue is richly developed. In the medullary substance the amount depends on age and on physiological function. In a nineteen-year-old virgin elastin appears only in the vessel walls, but in a primipara of twenty-three years elastic tissue appeared in the medullary substance near the follicles. In youth the fibres surround part of the obliterated follicle, in middle age the whole, and in old age the fibres are thickened and bunched.

In a primipara of twenty-five years it was observed that in the connective tissue which replaced the Graafian follicles the ground substance consisted of innumerable elastic fibres, which formed a delicate network. On the other hand, in another similar ovary no elastic fibres could be demonstrated. However, in most cases elastic tissue can be made out, and it seems to arise from the proliferating ovarian stroma. Up to a certain age the corpora fibrosa increase in number, and about them there is an increase in elastic tissue.

The elastic tissue of the ovarian bloodvessels undergoes changes chiefly in arterio-sclerosis. The elastic fibres in the intima increase in number, and the elastica interna often divides into two layers. If calcification also occurs the media contains little or no elastic tissue. In this case the increase of the fibres in the intima may be considered as a compensatory change to maintain the elasticity of the vessels.

The lumina of the vessels in the medullary substance often become obliterated by the proliferation of cells which adhere to the degenerated walls. The material of the degenerated walls can be seen to consist of thick elastic fibres which have become somewhat hyaline.

In the neighborhood of the corpora fibrosa are bloodvessels which have evidently been obliterated for some time. This is due to newly formed connective tissue which contains much elastic tissue.

Squamous-celled Carcinomatous Degeneration of an Ovarian Dermoid Cyst.—PETERS (*Bulletin of the Johns Hopkins Hospital*, 1900, vol. xi., p 78) gives a detailed description of a specimen in which an epidermoid carcinoma originated in a dermoid cyst of the ovary. Physical examination of the patient did not reveal carcinoma in any other part of the body. The tumor invaded the wall of the cyst and the surrounding tissues. A transition from the lining epithelium of the cyst into the epithelioid cells of the carcinoma was demonstrated. Some of the tumor cells were multinuclear, and their appearance suggested direct division. Giant cells similar to those often met with on the inner surface of dermoid cysts, free from any malignant new-growth, were present. These have been described by Hildebrandt as foreign-body giant cells due to the presence of hairs in the walls of the cysts. Peters, however, has often observed them in parts of the walls of dermoid cysts in which there were no hairs to be seen, and also in simple dermoids in which no hairs were found in any part of the tumor. He believes, with Cullen, that they are more probably a form of embryonic epithelium from which the lining epithelium of the cysts is developed.

A detailed description of the specimen and the clinical and post-operative history of the patient are given.

In reviewing the literature Peters finds that as yet no case of carcinoma thought to be derived from the coil or sebaceous glands of a dermoid cyst has been reported.

Among secondary changes, other than carcinomatous, which have been observed in dermoid cysts, he notes degeneration of glands in the wall of a dermoid and the development of sarcoma and of endothelioma. He reports also a case of carcinomatous degeneration of a part of an ovary in another part of which was a dermoid cyst.

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All communications should be addressed to

DR. ALFRED STENGEL, 1811 Spruce Street, Philadelphia, U. S. A.
Or
DR. HECTOR MACKENZIE, 59 Welbeck St., Cavendish Sq., London, W., Eng.